

WHAT IS CLAIMED IS:

1. A bonded substrate fabricated to have its final active layer thickness of 200nm or lower by performing an etching process on a surface of an active layer formed over a support substrate by cleaving off a portion of an active layer wafer, for the purpose of controlling the thickness of said active layer, said etching process carried out by using a solution having an etching effect so as to achieve the etching by a range of 1nm to 1 μ m.

2. A manufacturing method of a bonded substrate having its final active layer thickness of 200nm or lower by performing an etching process on a surface of an active layer formed over a support substrate by cleaving off a portion of an active layer wafer, for the purpose of controlling the thickness of said active layer, said etching process carried out by using a solution having an etching effect so as to achieve the etching by a range of 1nm to 1 μ m.

3. A manufacturing method of a bonded substrate in accordance with claim 2, in which an etching rate in said etching process is not greater than 100nm/min.

4. A manufacturing method of a bonded substrate in accordance with claim 2, in which said solution having an etching effect is a solution of pH 9 or higher containing alkaline chemicals and an oxidizer.

5. A manufacturing method of a bonded substrate in accordance with claim 3, in which said solution having an etching effect is a solution of pH 9 or higher containing alkaline chemicals and an oxidizer.

6. A manufacturing method of a bonded substrate in accordance with

claim 2, in which said solution having an etching effect is a solution of pH 9 or higher containing an aqueous solution of ammonia and an aqueous solution of hydrogen peroxide.

7. A manufacturing method of a bonded substrate in accordance with claim 3, in which said solution having an etching effect is a solution of pH 9 or higher containing an aqueous solution of ammonia and an aqueous solution of hydrogen peroxide.

8. A manufacturing method of a bonded substrate in accordance with claim 2, in which after said etching process, a thickness of said active layer is measured and based on said obtained measurement data, said etching process is repeated until said thickness of the active layer across its entire area comes near to a predetermined value of thickness.

9. A manufacturing method of a bonded substrate in accordance with claim 3, in which after said etching process, a thickness of said active layer is measured and based on said obtained measurement data, said etching process is repeated until said thickness of the active layer across its entire area comes near to a predetermined value of thickness.

10. A manufacturing method of a bonded substrate in accordance with claim 4, in which after said etching process, a thickness of said active layer is measured and based on said obtained measurement data, said etching process is repeated until said thickness of the active layer across its entire area comes near to a predetermined value of thickness.

11. A manufacturing method of a bonded substrate in accordance with claim 5, in which after said etching process, a thickness of said

active layer is measured and based on said obtained measurement data, said etching process is repeated until said thickness of the active layer across its entire area comes near to a predetermined value of thickness.

12. A manufacturing method of a bonded substrate in accordance with claim 6, in which after said etching process, a thickness of said active layer is measured and based on said obtained measurement data, said etching process is repeated until said thickness of the active layer across its entire area comes near to a predetermined value of thickness.

13. A manufacturing method of a bonded substrate in accordance with claim 7, in which after said etching process, a thickness of said active layer is measured and based on said obtained measurement data, said etching process is repeated until said thickness of the active layer across its entire area comes near to a predetermined value of thickness.

14. A manufacturing method of a bonded substrate in accordance with any one of claims 2 to 13, in which one of following steps is performed on said active layer surface of said bonded substrate before said etching process, said steps including:

(1) a step of chemical mechanical polishing process taking advantage of a chemical effect and a mechanical effect at the same time;

(2) a step of hydrogen treating process for performing a heat treatment in a reducing atmosphere containing hydrogen; and

(3) a step of forming a silicon oxide film over said active layer and then removing said silicon oxide film along with a damaged portion of said active layer, which has been created in said cleaving process.

15. A manufacturing method of a bonded substrate in accordance with any one of claims 2 to 13, in which one of following steps is performed on said active layer surface of said bonded substrate after said etching process, said steps including:

(1) a step of chemical mechanical polishing process taking advantage of a chemical effect and a mechanical effect at the same time;

(2) a step of hydrogen treating process for performing a heat treatment in a reducing atmosphere containing hydrogen; and

(3) a step of forming a silicon oxide film over said active layer and then removing said silicon oxide film along with a damaged portion of said active layer, which has been created in said cleaving process.

16. A manufacturing method of a bonded substrate in accordance with any one of claims 2 to 13, in which one of following steps is performed on said active layer surface of said bonded substrate after and before said etching process, said steps including:

(1) a step of chemical mechanical polishing process taking advantage of a chemical effect and a mechanical effect at the same time;

(2) a step of hydrogen treating process for performing a heat treatment in a reducing atmosphere containing hydrogen; and

(3) a step of forming a silicon oxide film over said active layer and then removing said silicon oxide film along with a damaged portion of said active layer, which has been created in said cleaving process.